

ASSIGNMENT-4

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Write code and connections in wokwi for ultrasonic sensor.

Whenever distance is less than 100 cms send "alert" to ibm cloud and display in device recent events.

CODE

```
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient;

#define ORG "nhpwjc"
#define DEVICE_TYPE "NodeMCU"
#define DEVICE_ID "USE YOUR ID"
#define TOKEN "USE YOUR TOKEN"
#define speed 0.034

char server[] = ORG
".messaging.internetofthings.ibmcloud.com"; char
publishTopic[] = "iot-2/evt/Data/fmt/json"; char topic[] = "iot-
2/cmd/home/fmt/String"; char authMethod[] = "use-token- auth"; char
token[] = TOKEN; char clientId[] = "d:" ORG ":" DEVICE_TYPE ":"
DEVICE_ID; PubSubClient client(server, 1883, wifiClient); void
publishData();
  const int trigpin=5;
const int echopin=18;
String command;
String data=""; long
duration; float dist;

void
setup()
{
  Serial.begin(115200); pinMode(trigpin,
  OUTPUT);
```

```

    pinMode(echopin, INPUT);    wifiConnect();
    mqttConnect();
} void loop() {    publishData();

    delay(500); if (!client.loop()) {

    mqttConnect(); } }

void wifiConnect() {
    Serial.print("Connecting to "); Serial.print("Wifi");
    WiFi.begin("Wokwi-GUEST", "", 6); while (WiFi.status() != WL_CONNECTED)
    { delay(500); Serial.print(".");
    }
    Serial.print("WiFi connected, IP address: "); Serial.println(WiFi.localIP());
}

void mqttConnect() { if
(!client.connected()) {
    Serial.print("Reconnecting MQTT client to "); Serial.println(server); while
    (!client.connect(clientId, authMethod, token)) { Serial.print("."); delay(500);
    }
    initManagedDevice(); Serial.println(); } }

void    initManagedDevice()    {    if
(client.subscribe(topic)) {
    // Serial.println(client.subscribe(topic)); Serial.println("subscribe to cmd OK");
    } else {
    Serial.println("subscribe to cmd FAILED");    }    } void
publishData()
{ digitalWrite(trigpin,LOW); digitalWrite(trigpin,HIGH);

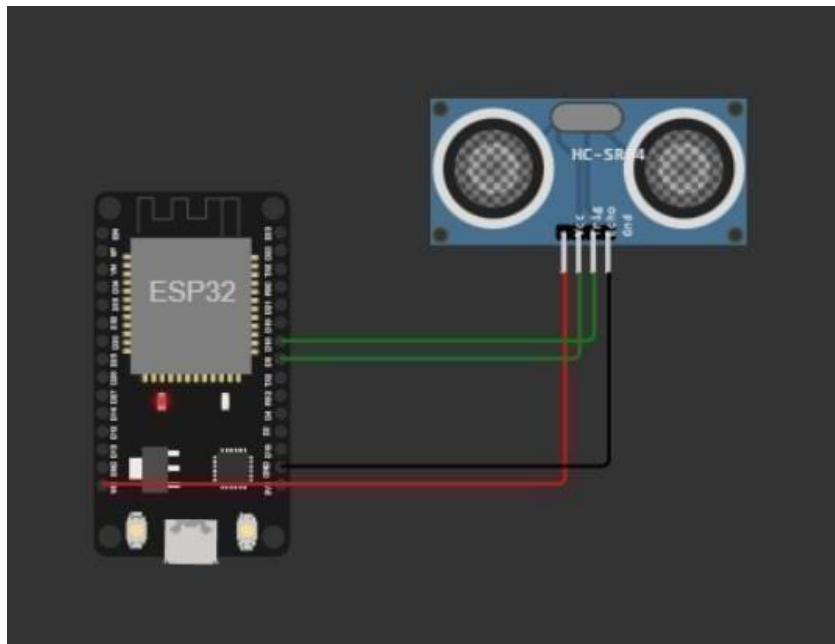
```

```

delayMicroseconds(10); digitalWrite(trigpin,LOW); duration=pulseIn(echopin,HIGH);
dist=duration*speed/2;
if(dist<100){
  String payload = "{\"Alert distance\":\""; payload += dist; payload
  += "\"}"; Serial.print("\n");
  Serial.print("Sending payload: ");
  Serial.println(payload);
  if (client.publish(publishTopic, (char*) payload.c_str())) { Serial.println("Publish OK");
  } else {
    Serial.println("Publish FAILED");
  }
}
}

```

CONNECTIONS



OUTPUT



Sending payload: { "Alert distance" : 93.96}
Publish OK

Sending payload: {'Alert distance':93.96}
Publish OK

Sending payload: ('Alert distance':93.96)
Publish DK

Sending payload: {"Alert distance" : 93.96}
Publish OK

Sending payload: ("Alert distance" : 93.96)
Publish OK